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Diffeomorphic Shape Analysis of Continuous Curves.

The talk will focus on a Riemannian framework for shape analysis of both open and closed, parameterized curves. Shapes are treated as elements of an infinite-dimensional, non-linear, quotient space, and statistics of shapes are defined and computed intrinsically using differential geometry of this shape space. Due to a special square-root velocity parameterization, the shape space turns out to be a infinite-dimensional sphere, and geodesics can be analytically specified. Additionally, the geodesics will also be computed in a parameterization-invariant manner. This enables elastic matching of shapes with interesting results. Finally, I'll present some results of curve-based shape analysis applied to a brain morphometry. (Received August 17, 2010)